

TU Dublin  
Tallaght Campus  
Department of Computing

OO Software Development Principles

Lab 6

**Task:**

A hotel chain is implementing a hotel management system. You have been recruited to write the software. The following is the requirements specification

- The Hotel class should have the following data members:
  - A variable containing the hotel name
  - A variable containing the hotel address
  - A variable containing the year the hotel was built
  - A variable containing the number of rooms in the hotel
  - A variable indication whether the hotel has a spa or not,
- Write the code so that the **Hotel** class contains the above attributes.
- Write the code for an initialiser for the **Hotel** class which allows values to be passed in and set for the following member variables, name, address, year built, number of rooms, and whether or not they have a spa. If the value for the year the hotel was built is negative set it to 0. If the number of rooms argument is negative set it to 0 also. Allow default values to be used in the initialiser, where default values of spaces, zeroes and false for Strings, numeric and boolean fields respectively.
- Write the code for a **cost\_insurance()** method which returns the insurance amount due by the hotel (no arguments) The insurance total is calculated from the following table.

**The base price for insurance is 1000 euro, and then the following surcharges apply:**

Year of build	Surcharge
<1950	1000
1951-1999	750
2000-to date	500
Number of Rooms	Surcharge
<25	300
25-50	400
51-100	650
>100	900
Spa	Surcharge
True	300

- Write the code for a **print\_details()** method for the **Hotel** class which displays the hotel's details, including the insurance cost (this should use the **cost\_insurance()** definition)
- Write test code in the main Python code body to test the above class with the bellow test data:

The first hotel object called **h1** is created for Hotel Marion, Ballsbridge, which was built in 2001 and has 200 rooms, and a spa.

The second hotel object called **h2** is created for Hotel Lavery, OConnell St, which was built in 1960 and has 90 rooms and has no spa.

The chain want to know which hotel has the highest insurance cost and what the average insurance cost is. Print each hotel's insurance cost, and the average insurance cost.

Print the details of the hotel with the highest insurance.